line and the management of the batteries. The cost of the line, therefore, to each farmer, would be, say, $75, which might be distributed over ten years. Mr. Nipher stated that in several localities the farmers will undertake it just as soon as the information can be furnished them. At the stations the lines could easily be made to terminate in the store of some merchant, who is anxious to secure the trade of the people on the line. This can be done at once in Missouri. The only thing necessary is for the state to appropriate a small amount of money to supply the persons and instruments for observations, rain-gauges, etc. The two things necessary to make it successful are information as to rainfall, and time of beginning and ending of rains.

NOTES AND NEWS.

— The next meeting of the American association for the advancement of science will be held in Philadelphia, probably during the first week in September, 1884. At the session in Minneapolis last Tuesday, the following persons were chosen as officers for the Philadelphia meeting: President: Dr. J. P. Lesley, of Philadelphia. Vice-presidents: Section A (mathematics and astronomy), Prof. H. T. Eddy, of Cincinnati; B (physics), Professor John Trowbridge, of Cambridge; C (chemistry), Prof. J. W. Langley, of Ann Arbor; D (mechanical science), Prof. R. H. Thurston, of Hoboken; E (geology and geography), Prof. N. H. Winchell, of Minneapolis; F (biology), Prof. E. D. Cope, of Philadelphia; G (histology and microscopy), Prof. T. G. Wormley, of Philadelphia; H (anthropology), Prof. E. S. Morse, of Salem; I (economic science and statistics), Hon. John Eaton, of Washington. Permanent secretary: Mr. F. W. Putnam, of Cambridge. General secretary: Dr. Alfred Springer, of Cincinnati. Assistant general secretary: Prof. E. S. Holden, of Madison. Secretaries of the sections: A, Mr. G. W. Hough, of Chicago; B, Mr. N. D. C. Hodges, of Salem; C, Prof. R. B. Warder, of Cincinnati; D, Prof. J. B. Webb, of Ithaca; E, Prof. E. A. Smith, of Tuscaloosa; F, Prof. C. E. Bessey, of Ames; G, Dr. Romyn Hitchcock, of New York; H, Mr. W. H. Holmes, of Washington; I, Mr. Charles W. Smiley, of Washington. Treasurer: Hon. William Lilly, of Mauch Chunk.

— A course of eighteen special lectures will be given next year to members of Johns Hopkins university on topics relating to instruction in the higher institutions of learning. They will be informal lectures, connected only by the general purpose of helping advanced students who are looking forward more or less definitely to the work of teachers to become familiar with the principles and methods followed by other persons, and with the results which have been obtained in different types of educational establishments. The following are announced: —

The present state of university and collegiate instruction in this country, by D. C. Gilman; Recent observations on educational foundations in Europe, by D. C. Gilman; Natural and ethnic history of arithmetic, by J. J. Sylvester; The educational value of grammar, by B. L. Gildersleeve; The future sphere of classical philology, by B. L. Gildersleeve; Educational value of the study of chemistry, by Ira Remsen; What to teach in biology, by H. Newell Martin; One lecture by H. A. Rowland; The observational element in mathematics, by C. S. Peirce; The *a priori* element in physics, by C. S. Peirce; The *naïve* in education, by H. Wood; Modern methods in the study of history, by H. B. Adams; Methods of comparative philology as pursued to-day, by M. Bloomfield; The new impetus given to the study of Latin by the application of the historical method, and by the study of inscriptions, by Minton Warren; Hygiene in collegiate training, by E. M. Hartwell; Rhythm and education, by G. Stanley Hall; The educational value of specialization and original work, by G. Stanley Hall; The uses of libraries in education, by D. C. Gilman.

A course of nine lectures specially designed for college students will also be given, as follows: —

The choice of a profession, by D. C. Gilman; The light which biography throws on college life, by D. C. Gilman; Reading as an auxiliary to study, by W. Hand Browne; The right use of translations, by C. D. Morris; Historical fiction, by H. B. Adams; The English universities, by J. Rendel Harris; Recreation, by E. M. Hartwell; Mental hygiene, by G. Stanley Hall; Science work, by Ira Remsen.

— The Imperial meteorological observatory of Japan has established a telegraphic weather-service, and at present receives reports from twenty-two well-distributed stations. No forecasts are yet attempted, although it is the intention to make them as soon as sufficient experience will justify the step. Tri-daily maps and bulletins are, however, prepared. It is interesting to note that but one telegram is received each day from the several stations. This is sent by the aid of a cipher, which consists of a simple combination of figures, not of words, as is the case in the cipher used by the U. S. signal-service. The daily despatch is the equivalent of about eight words, and contains all the usual meteorological data for each of the three preceding observations.

— The Meteorological council publishes the results of rainfall observations at three hundred and thirty-six stations in Great Britain, made without interruption from 1866 to 1880, under the supervision of Mr. G. J. Symons. The monthly means are given for each year, for each period of five years, and for the whole fifteen years. No discussion of the observations is made, though it would seem that valuable conclusions could be derived from them.

— Mr. V. T. Chambers, an entomologist well known for his studies on the Tineina, died at his residence in Covington, Ky., at two o'clock on the morning of Aug. 7. During the afternoon of Aug. 6 he had a stroke of paralysis, and died from its effects. He was fifty-two years old on that morning. He was a constant contributor to the *Canadian entomologist* and many other entomological journals. In the Bulletin of the U. S. geological survey there are several papers from his pen: viz., the Tineina of Colorado; notes on a collection of tineid moths made in Colo-

rado in 1875 by A. S. Packard, jun.; on the distribution of Tineina in Colorado; new Entomostraca from Colorado; descriptions of new Tineina from Texas, etc.; Tineina and their food-plants; and an index to the described Tineina of the United States and Canada. He also contributed a number of papers to the *Journal* of the Cincinnati society of natural history, of which he was a member, and at one time president. The most important of these papers were: on the tongue (*lingua*) of some Hymenoptera; on Pronuba yuccasella Riley, and the habits of some Tineina; his annual address as president of the society on the metamorphoses of insects, as illustrated in the tineid genus Lithocolletis of Zeller; descriptions of some new Tineina, with notes on a few old species; illustrations of the neuration of the wings of American Tineina; and on the antennae and trophi of lepidopterous larvae. Many of these papers are illustrated by his own drawings. A lawyer by profession, he found time to do much excellent work in science, and formed a large collection, which has been for some years in the Museum of comparative zoölogy at Cambridge. He was also proficient as a microscopist and a botanist. He leaves a wife and three sons, and his loss will also be felt by all the entomologists of the country.

— Dr. John A. Warder, for many years one of the most prominent horticulturists and foresters in the west, died at his home at North Bend, O., on July 14, in the seventy-second year of his age. He has been identified with the west, and especially with Cincinnati, for nearly fifty years. He was president for many years of the Horticultural society, and has written many papers on botanical and kindred subjects. He was one of the founders of the American forestry association, always took an active interest in its proceedings, and contributed many papers to its meetings.

— Professor Simon Newcomb has taken passage for home in the Bothnia, which sails to-morrow from Liverpool to New York. He was to attend the meeting of the French association for the advancement of science at Rouen, just closed. Prof. E. C. Pickering, who has been spending the summer in Europe, will return in October.

— "At the end of May," says Dr. G. Hinrichs in his July Iowa weather bulletin, "this year's growing season, counted from April 1, was sixty degrees in the aggregate ahead of last year's. We had gained nothing more at the end of June; for last year's June was moderate, the same as this season's June. But during July we gained in the aggregate one hundred degrees over last year's July; so that, on the 1st of August of this year, we have received in the aggregate one hundred and sixty degrees of heat more than last year at this period. This fact, together with the fair sky and generally favorable distribution of rainfall, accounts for the greatly superior condition of our crops this year.

"The storm-record," he adds, "has been given in sufficient detail to help to dispel the exaggerated notions of danger from whirlwinds in Iowa. It will readily be seen, that if squalls extending simultaneously over a large storm-front, and progressing for hours like a huge wave, are heralded as 'tornadoes' at every place they reach, people at a distance will soon wonder that towns exist at all in the north-west, and our own people will be scared into expensive tornado insurance. In time our buildings will be substantial enough to withstand our summer squalls and winter blizzards successfully. As to genuine tornadoes, they are rare, and very limited in extent."

— For some months the electricians of Paris have held a monthly dinner. These dinners owed their origin to Count Hallez-d'Arros, and were attended by no organized society, but were re-unions of those interested in electrical science. Lately it has been thought better to give the gatherings more stability by some manner of permanent organization; and at the June meeting a *Société des électriciens* was formed.

— During the past year, original investigations in the following subjects, among others, have been carried on in the physical laboratory of Johns Hopkins university under the direction of Professor Rowland and Dr. Hastings: on the photography of the spectrum by means of the concave grating (the photographs of the spectrum, so far made, extend down to *B*, the original negatives being about $\frac{2}{3}$ the scale of Angström's map from *B* to *b*, equal to Angström's from *b* to *G*, and $1\frac{1}{2}$ Angström's from *G* to the extreme ultra-violet; they show 150 lines between the *H* lines, and give the 1474 and b_3 and b_4 widely double and the *E* line indistinctly double); on the determination of the B. A. unit of electrical resistance in absolute measure; the determination of the specific resistance of mercury; the variation of the specific heat of water with the temperature; the relative wave-lengths of the lines of the spectrum by means of the concave grating; the effect of difference of phase in the harmonics on the timbre of sound; and on the variation of the magnetic permeability of nickel by change of temperature.

— Professor Palmieri announces the existence in the lava of Vesuvius of a substance giving the spectrum line of 'helium,' — an element hitherto recognized only in the sun. He considers the late disaster at Ischia to be due to subsidence of land consequent on the unusual activity of Mount Vesuvius.

— There will shortly be published by Allen & Co. of London a book by A. H. Swinton, entitled 'The influence of the sun on natural phenomena.' One may judge of the book's value by the following quotation from the prospectus: "The multitude who read the morning's newspaper may find in it some reason for their successes and losses, further than blind fatality."

RECENT BOOKS AND PAMPHLETS.

Cogniaux, A. Petite flore de Belgique à l'usage des écoles. Mons, *Manceaux*, 1883. 232 p. 12°.

Cock, A. de. Flora der Dendervallei. Analytische sleutel der familien en geslachten (zaadplanten af phanerogamen). Gand, *Meyer-Van Loo*, 1883. 108 p. 8°.

Dandois de Mellet. Du rôle des organismes inférieurs dans les complications des plaies. Bruxelles, 1883. 332 p. 8°.